CLAIMS

What is claimed is:

1. An apparatus for plotting proteomic and genomic data, the apparatus comprising a computer system including a processor, a memory coupled with the processor, an input coupled with the processor for receiving proteomic and genomic data and for receiving user input, and an output coupled with the processor for displaying data in a visual form, wherein the computer system further comprises means, residing in its processor and memory, for:

   a. receiving a set of proteomic and genomic data including data samples with characteristics;

   b. receiving at least one partitioning scheme, with each partition scheme including at least one partition into which a portion of the data is to be grouped based on a characteristic;

   c. generating a graphical representation of the relative size of each partition in each partition scheme;

   d. accepting a user selection of a particular partition scheme; and, in response,

   e. adjusting the view of all other partition schemes to reflect the distribution of the characteristic used as the basis of the selected partition scheme; and

   f. outputting a graphical representation; whereby a user can view a graphical representation of the distribution of a particular characteristic based on a particular partitioning scheme.

2. An apparatus for plotting proteomic and genomic data as set forth in claim 1, wherein the means for generating a graphical representation generates a graphical representation in the form of pie-type charts, each with pie slices, with each pie slice representing the portion of the overall pie attributable to a particular partition of a partition scheme.

3. An apparatus for plotting proteomic and genomic data as set forth in claim 1, wherein the means for generating a graphical representation generates a graphical representation in the form of a plurality of pie chart groups, with each pie chart group including a partition scheme pie chart representing the overall distribution a characteristic selected, and a plurality of partition pie charts, each representing a partition within the partition scheme pie chart.

4. An apparatus for plotting proteomic and genomic data as set forth in claim 3, wherein the means for accepting a user selection of a particular partition scheme accepts a user selection of a particular partition scheme by the user graphically selecting a pie chart group among the plurality of pie chart groups, and wherein the means for adjusting the view of all other partition schemes to reflect the distribution of the characteristic used as the basis of the selected partition scheme adjusts all of the pie chart groups such that the partition scheme pie charts and the partition pie charts are all partitioned according to the partition scheme of the selected pie chart group; whereby the pie charts may be compared visually to determine possible correlations therebetween.

5. An apparatus for plotting proteomic and genomic data as set forth in claim 4, further comprising means for:
   a. receiving a user selection of multiple partition pie charts;
   b. receiving a user request to unite the partition pie charts into a united group consisting of the data present in all of the multiple partition pie charts selected by the user; and
   c. generating a list of the data in the united group.

6. An apparatus for plotting proteomic and genomic data as set forth in claim 5, further including means for generating and displaying a pie chart based on the data in the united group and partitioned into two slices, with one slice representing the number of data samples in the united group and the other slice

representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the united group; whereby a user may view the number of samples in the united group and its complement in a single pie chart.

7. An apparatus for plotting proteomic and genomic data as set forth in claim 6, further including means for generating a new partition scheme with one partition representing the number of data samples in the united group and the other partition representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the united group.

8. An apparatus for plotting proteomic and genomic data as set forth in claim 4, further comprising means for:
   a. receiving a user selection of multiple partition pie charts;
   b. receiving a user request to intersect the partition pie charts into an intersected group consisting of data present in all of the multiple partition pie charts selected by the user; and
   c. generating a list of the data in the intersected group.

9. An apparatus for plotting proteomic and genomic data as set forth in claim 8, further including means for generating and displaying a pie chart based on the data in the intersected group and partitioned into two slices, with one slice representing the number of data samples in the intersected group and the other slice representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the intersected group; whereby a user may view the number of samples in the intersected group and its complement in a single pie chart.

10. An apparatus for plotting proteomic and genomic data as set forth in claim 9, further including means for generating a new partition scheme with one partition

representing the number of data samples in the intersected group and the other partition representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the intersected group.

11. An apparatus for plotting proteomic and genomic data as set forth in claim 4, further including means for displaying a list of data used for the generation of a particular partition pie chart when the partition pie chart is selected; whereby a user may view a partition pie chart and may also examine the underlying data.

12. An apparatus for plotting proteomic and genomic data as set forth in claim 1, further including means for receiving a user request to search for a particular piece of data and, in response to the user request, for indicating the pie charts in which the particular piece of data is present; whereby a user may visually determine which pie chart groups include the particular piece of data.

13. An apparatus for plotting proteomic and genomic data as set forth in claim 4, further comprising means for:
   a. receiving a user selection of multiple partition pie charts;
   b. receiving a user request to unite the partition pie charts into a united group consisting of the data present in all of the multiple partition pie charts selected by the user; and
   c. generating a list of the data in the united group.

14. An apparatus for plotting proteomic and genomic data as set forth in claim 13, further including means for generating and displaying a pie chart based on the data in the united group and partitioned into two slices, with one slice representing the number of data samples in the united group and the other slice representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the united group; whereby a user may view

the number of samples in the united group and its complement in a single pie chart.

15. An apparatus for plotting proteomic and genomic data as set forth in claim 14, further including means for generating a new partition scheme with one partition representing the number of data samples in the united group and the other partition representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the united group.

16. An apparatus for plotting proteomic and genomic data as set forth in claim 15, further comprising means for:
   a. receiving a user selection of multiple partition pie charts;
   b. receiving a user request to intersect the partition pie charts into an intersected group consisting of data present in all of the multiple partition pie charts selected by the user; and
   c. generating a list of the data in the intersected group.

17. An apparatus for plotting proteomic and genomic data as set forth in claim 16, further including means for generating and displaying a pie chart based on the data in the intersected group and partitioned into two slices, with one slice representing the number of data samples in the intersected group and the other slice representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the intersected group; whereby a user may view the number of samples in the intersected group and its complement in a single pie chart.

18. An apparatus for plotting proteomic and genomic data as set forth in claim 17, further including means for generating a new partition scheme with one partition representing the number of data samples in the intersected group and the other

partition representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the intersected group.

19. An apparatus for plotting proteomic and genomic data as set forth in claim 18, further including means for displaying a list of data used for the generation of a particular partition pie chart when the partition pie chart is selected; whereby a user may view a partition pie chart and may also examine the underlying data.

20. An apparatus for plotting proteomic and genomic data as set forth in claim 19, further including means for receiving a user request to search for a particular piece of data and, in response to the user request, for indicating the pie charts in which the particular piece of data is present; whereby a user may visually determine which pie chart groups include the particular piece of data.

21. An apparatus for plotting proteomic and genomic data as set forth in claim 1, wherein the means for generating a graphical representation generates a graphical representation in the form of a graphical chart, each with chart slices, with each chart slice representing the portion of the overall chart attributable to a particular partition of a partition scheme.

22. An apparatus for plotting proteomic and genomic data as set forth in claim 1, wherein the means for generating a graphical representation generates a graphical representation in the form of a plurality of chart groups, with each chart group including a partition scheme chart representing the overall distribution a characteristic selected, and a plurality of partition charts, each representing a partition within the partition scheme chart.

23. An apparatus for plotting proteomic and genomic data as set forth in claim 22, wherein the means for accepting a user selection of a particular partition scheme accepts a user selection of a particular partition scheme by the user graphically

selecting a chart group among the plurality of chart groups, and wherein the means for adjusting the view of all other partition schemes to reflect the distribution of the characteristic used as the basis of the selected partition scheme adjusts all of the chart groups such that the partition scheme charts and the partition charts are all partitioned according to the partition scheme of the selected chart group; whereby the charts may be compared visually to determine possible correlations therebetween.

24. An apparatus for plotting proteomic and genomic data as set forth in claim 23, further comprising means for:
    a. receiving a user selection of multiple partition charts;
    b. receiving a user request to unite the partition charts into a united group consisting of the data present in all of the multiple partition charts selected by the user; and
    c. generating a list of the data in the united group.

25. An apparatus for plotting proteomic and genomic data as set forth in claim 24, further including means for generating and displaying a chart based on the data in the united group and partitioned into two slices, with one slice representing the number of data samples in the united group and the other slice representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the united group; whereby a user may view the number of samples in the united group and its complement in a single chart.

26. An apparatus for plotting proteomic and genomic data as set forth in claim 25, further including means for generating a new partition scheme with one partition representing the number of data samples in the united group and the other partition representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the united group.

27. An apparatus for plotting proteomic and genomic data as set forth in claim 23,
further comprising means for:
    a. receiving a user selection of multiple partition charts;
    b. receiving a user request to intersect the partition charts into an intersected
       group consisting of data present in all of the multiple partition charts
       selected by the user; and
    c. generating a list of the data in the intersected group.

28. An apparatus for plotting proteomic and genomic data as set forth in claim 27,
further including means for generating and displaying a chart based on the data in
the intersected group and partitioned into two slices, with one slice representing
the number of data samples in the intersected group and the other slice
representing the number of data samples in the set of proteomic and genomic data
minus the number of data samples in the intersected group; whereby a user may
view the number of samples in the intersected group and its complement in a
single chart.

29. An apparatus for plotting proteomic and genomic data as set forth in claim 28,
further including means for generating a new partition scheme with one partition
representing the number of data samples in the intersected group and the other
partition representing the number of data samples in the set of proteomic and
genomic data minus the number of data samples in the intersected group.

30. An apparatus for plotting proteomic and genomic data as set forth in claim 23,
further including means for displaying a list of data used for the generation of a
particular partition chart when the partition chart is selected; whereby a user may
view a partition chart and may also examine the underlying data.

31. An apparatus for plotting proteomic and genomic data as set forth in claim 30,
further including means for receiving a user request to search for a particular chart

of data and, in response to the user request, for indicating the charts in which the particular chart of data is present; whereby a user may visually determine which chart groups include the particular chart of data.

32. An apparatus for plotting proteomic and genomic data as set forth in claim 23, further comprising means for:

    a. receiving a user selection of multiple partition charts;

    b. receiving a user request to unite the partition charts into a united group consisting of the data present in all of the multiple partition charts selected by the user; and

    c. generating a list of the data in the united group.

33. An apparatus for plotting proteomic and genomic data as set forth in claim 32, further including means for generating and displaying a chart based on the data in the united group and partitioned into two slices, with one slice representing the number of data samples in the united group and the other slice representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the united group; whereby a user may view the number of samples in the united group and its complement in a single chart.

34. An apparatus for plotting proteomic and genomic data as set forth in claim 33, further including means for generating a new partition scheme with one partition representing the number of data samples in the united group and the other partition representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the united group.

35. An apparatus for plotting proteomic and genomic data as set forth in claim 34, further comprising means for:

    a. receiving a user selection of multiple partition charts;

b. receiving a user request to intersect the partition charts into an intersected group consisting of data present in all of the multiple partition charts selected by the user; and

c. generating a list of the data in the intersected group.

5

36. An apparatus for plotting proteomic and genomic data as set forth in claim 35, further including means for generating and displaying a chart based on the data in the intersected group and partitioned into two slices, with one slice representing the number of data samples in the intersected group and the other slice representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the intersected group; whereby a user may view the number of samples in the intersected group and its complement in a single chart.

10

37. An apparatus for plotting proteomic and genomic data as set forth in claim 36, further including means for generating a new partition scheme with one partition representing the number of data samples in the intersected group and the other partition representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the intersected group.

15

20

38. An apparatus for plotting proteomic and genomic data as set forth in claim 37, further including means for displaying a list of data used for the generation of a particular partition chart when the partition chart is selected; whereby a user may view a partition chart and may also examine the underlying data.

25

39. An apparatus for plotting proteomic and genomic data as set forth in claim 38, further including means for receiving a user request to search for a particular chart of data and, in response to the user request, for indicating the charts in which the particular chart of data is present; whereby a user may visually determine which chart groups include the particular chart of data.

30

40. A method for plotting proteomic and genomic data, the method operating on a computer system including a processor, a memory coupled with the processor, an input coupled with the processor for receiving proteomic and genomic data and for receiving user input, and an output coupled with the processor for displaying data in a visual form, the method comprising the steps of:

    a. receiving a set of proteomic and genomic data in the input of the computer system including data samples with characteristics;

    b. receiving at least one partitioning scheme in the input of the computer system, with each partition scheme including at least one partition into which a portion of the data is to be grouped based on a characteristic;

    c. generating a graphical representation of the relative size of each partition in each partition scheme;

    d. accepting a user selection of a particular partition scheme in the input of the computer system; and, in response,

    e. adjusting the view of all other partition schemes to reflect the distribution of the characteristic used as the basis of the selected partition scheme; and

    f. outputting a graphical representation through the output of the computer system for display in a visual display device; whereby a user can view a graphical representation of the distribution of a particular characteristic based on a particular partitioning scheme.

41. A method for plotting proteomic and genomic data as set forth in claim 40, wherein the step of generating a graphical representation generates a graphical representation in the form of pie-type charts, each with pie slices, with each pie slice representing the portion of the overall pie attributable to a particular partition of a partition scheme.

42. A method for plotting proteomic and genomic data as set forth in claim 40, wherein the step of generating a graphical representation generates a graphical

representation in the form of a plurality of pie chart groups, with each pie chart group including a partition scheme pie chart representing the overall distribution a characteristic selected, and a plurality of partition pie charts, each representing a partition within the partition scheme pie chart.

5

43. A method for plotting proteomic and genomic data as set forth in claim 42, wherein the step of accepting a user selection of a particular partition scheme accepts a user selection of a particular partition scheme by the user graphically selecting a pie chart group among the plurality of pie chart groups, and wherein

10   the step of adjusting the view of all other partition schemes to reflect the distribution of the characteristic used as the basis of the selected partition scheme adjusts all of the pie chart groups such that the partition scheme pie charts and the partition pie charts are all partitioned according to the partition scheme of the selected pie chart group; whereby the pie charts may be compared visually to

15   determine possible correlations therebetween.

44. A method for plotting proteomic and genomic data as set forth in claim 43, further comprising means for:
    a. receiving a user selection of multiple partition pie charts;
    b. receiving a user request to unite the partition pie charts into a united group

20   consisting of the data present in all of the multiple partition pie charts selected by the user; and
    c. generating a list of the data in the united group.

25 45. A method for plotting proteomic and genomic data as set forth in claim 44, further including a step of generating and displaying a pie chart based on the data in the united group and partitioned into two slices, with one slice representing the number of data samples in the united group and the other slice representing the number of data samples in the set of proteomic and genomic data minus the

number of data samples in the united group; whereby a user may view the number of samples in the united group and its complement in a single pie chart.

46. A method for plotting proteomic and genomic data as set forth in claim 45, further including a step of generating a new partition scheme with one partition representing the number of data samples in the united group and the other partition representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the united group.

47. A method for plotting proteomic and genomic data as set forth in claim 43, further comprising steps of:
   a. receiving a user selection of multiple partition pie charts;
   b. receiving a user request to intersect the partition pie charts into an intersected group consisting of data present in all of the multiple partition pie charts selected by the user; and
   c. generating a list of the data in the intersected group.

48. A method for plotting proteomic and genomic data as set forth in claim 47, further including steps of generating and displaying a pie chart based on the data in the intersected group and partitioned into two slices, with one slice representing the number of data samples in the intersected group and the other slice representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the intersected group; whereby a user may view the number of samples in the intersected group and its complement in a single pie chart.

49. A method for plotting proteomic and genomic data as set forth in claim 48, further including steps of generating a new partition scheme with one partition representing the number of data samples in the intersected group and the other

partition representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the intersected group.

50. A method for plotting proteomic and genomic data as set forth in claim 43, further including a step of displaying a list of data used for the generation of a particular partition pie chart when the partition pie chart is selected; whereby a user may view a partition pie chart and may also examine the underlying data.

51. A method for plotting proteomic and genomic data as set forth in claim 40, further including a steps of receiving a user request to search for a particular piece of data and, in response to the user request, of indicating the pie charts in which the particular piece of data is present; whereby a user may visually determine which pie chart groups include the particular piece of data.

52. A method for plotting proteomic and genomic data as set forth in claim 43, further comprising steps of:
    a. receiving a user selection of multiple partition pie charts;
    b. receiving a user request to unite the partition pie charts into a united group consisting of the data present in all of the multiple partition pie charts selected by the user; and
    c. generating a list of the data in the united group.

53. A method for plotting proteomic and genomic data as set forth in claim 53, further including steps of generating and displaying a pie chart based on the data in the united group and partitioned into two slices, with one slice representing the number of data samples in the united group and the other slice representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the united group; whereby a user may view the number of samples in the united group and its complement in a single pie chart.

54. A method for plotting proteomic and genomic data as set forth in claim 53, further including a step of generating a new partition scheme with one partition representing the number of data samples in the united group and the other partition representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the united group.

55. A method for plotting proteomic and genomic data as set forth in claim 54, further comprising steps of:

    a. receiving a user selection of multiple partition pie charts;

    b. receiving a user request to intersect the partition pie charts into an intersected group consisting of data present in all of the multiple partition pie charts selected by the user; and

    c. generating a list of the data in the intersected group.

56. A method for plotting proteomic and genomic data as set forth in claim 55, further including steps of generating and displaying a pie chart based on the data in the intersected group and partitioned into two slices, with one slice representing the number of data samples in the intersected group and the other slice representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the intersected group; whereby a user may view the number of samples in the intersected group and its complement in a single pie chart.

57. A method for plotting proteomic and genomic data as set forth in claim 56, further including a step of generating a new partition scheme with one partition representing the number of data samples in the intersected group and the other partition representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the intersected group.

58. A method for plotting proteomic and genomic data as set forth in claim 57, further including a step of displaying a list of data used for the generation of a particular partition pie chart when the partition pie chart is selected; whereby a user may view a partition pie chart and may also examine the underlying data.

5

59. A method for plotting proteomic and genomic data as set forth in claim 58, further including steps of receiving a user request to search for a particular piece of data and, in response to the user request, of indicating the pie charts in which the particular piece of data is present; whereby a user may visually determine which pie chart groups include the particular piece of data.

10

60. A method for plotting proteomic and genomic data as set forth in claim 40, wherein step of generating a graphical representation generates a graphical representation in the form of a graphical chart, each with chart slices, with each chart slice representing the portion of the overall chart attributable to a particular partition of a partition scheme.

15

61. A method for plotting proteomic and genomic data as set forth in claim 40, wherein the step of generating a graphical representation generates a graphical representation in the form of a plurality of chart groups, with each chart group including a partition scheme chart representing the overall distribution a characteristic selected, and a plurality of partition charts, each representing a partition within the partition scheme chart.

20

25

62. A method for plotting proteomic and genomic data as set forth in claim 61, wherein the step of accepting a user selection of a particular partition scheme accepts a user selection of a particular partition scheme by the user graphically selecting a chart group among the plurality of chart groups, and wherein the step of adjusting the view of all other partition schemes to reflect the distribution of the characteristic used as the basis of the selected partition scheme adjusts all of

30

the chart groups such that the partition scheme charts and the partition charts are all partitioned according to the partition scheme of the selected chart group; whereby the charts may be compared visually to determine possible correlations therebetween.

63. A method for plotting proteomic and genomic data as set forth in claim 62, further comprising steps of:

    a.   receiving a user selection of multiple partition charts;

    b.   receiving a user request to unite the partition charts into a united group consisting of the data present in all of the multiple partition charts selected by the user; and

    c.   generating a list of the data in the united group.

64. A method for plotting proteomic and genomic data as set forth in claim 63, further including a step of generating and displaying a chart based on the data in the united group and partitioned into two slices, with one slice representing the number of data samples in the united group and the other slice representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the united group; whereby a user may view the number of samples in the united group and its complement in a single chart.

65. A method for plotting proteomic and genomic data as set forth in claim 64, further including a step of generating a new partition scheme with one partition representing the number of data samples in the united group and the other partition representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the united group.

66. A method for plotting proteomic and genomic data as set forth in claim 62, further comprising steps of:

    a.   receiving a user selection of multiple partition charts;

b. receiving a user request to intersect the partition charts into an intersected group consisting of data present in all of the multiple partition charts selected by the user; and

c. generating a list of the data in the intersected group.

5

67. A method for plotting proteomic and genomic data as set forth in claim 66, further including steps for generating and displaying a chart based on the data in the intersected group and partitioned into two slices, with one slice representing the number of data samples in the intersected group and the other slice representing
10   the number of data samples in the set of proteomic and genomic data minus the number of data samples in the intersected group; whereby a user may view the number of samples in the intersected group and its complement in a single chart.

68. A method for plotting proteomic and genomic data as set forth in claim 67, further
15   including a step for generating a new partition scheme with one partition representing the number of data samples in the intersected group and the other partition representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the intersected group.

20   69. A method for plotting proteomic and genomic data as set forth in claim 62, further including a step of displaying a list of data used for the generation of a particular partition chart when the partition chart is selected; whereby a user may view a partition chart and may also examine the underlying data.

25   70. A method for plotting proteomic and genomic data as set forth in claim 69, further including steps of receiving a user request to search for a particular chart of data and, in response to the user request, of indicating the charts in which the particular chart of data is present; whereby a user may visually determine which chart groups include the particular chart of data.

30

71. A method for plotting proteomic and genomic data as set forth in claim 62, further comprising steps of:

    a. receiving a user selection of multiple partition charts;

    b. receiving a user request to unite the partition charts into a united group consisting of the data present in all of the multiple partition charts selected by the user; and

    c. generating a list of the data in the united group.

72. A method for plotting proteomic and genomic data as set forth in claim 71, further including steps of generating and displaying a chart based on the data in the united group and partitioned into two slices, with one slice representing the number of data samples in the united group and the other slice representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the united group; whereby a user may view the number of samples in the united group and its complement in a single chart.

73. A method for plotting proteomic and genomic data as set forth in claim 72, further including a step of generating a new partition scheme with one partition representing the number of data samples in the united group and the other partition representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the united group.

74. A method for plotting proteomic and genomic data as set forth in claim 73, further comprising steps of:

    a. receiving a user selection of multiple partition charts;

    b. receiving a user request to intersect the partition charts into an intersected group consisting of data present in all of the multiple partition charts selected by the user; and

    c. generating a list of the data in the intersected group.

75. A method for plotting proteomic and genomic data as set forth in claim 74, further including steps for generating and displaying a chart based on the data in the intersected group and partitioned into two slices, with one slice representing the number of data samples in the intersected group and the other slice representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the intersected group; whereby a user may view the number of samples in the intersected group and its complement in a single chart.

76. A method for plotting proteomic and genomic data as set forth in claim 75, further including a step of generating a new partition scheme with one partition representing the number of data samples in the intersected group and the other partition representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the intersected group.

77. A method for plotting proteomic and genomic data as set forth in claim 76, further including a step of displaying a list of data used for the generation of a particular partition chart when the partition chart is selected; whereby a user may view a partition chart and may also examine the underlying data.

78. A method for plotting proteomic and genomic data as set forth in claim 77, further including steps of receiving a user request to search for a particular chart of data and, in response to the user request, of indicating the charts in which the particular chart of data is present; whereby a user may visually determine which chart groups include the particular chart of data.

79. A computer program product for plotting proteomic and genomic data, a computer system including a processor, a memory coupled with the processor, an input coupled with the processor for receiving proteomic and genomic data and for receiving user input, and an output coupled with the processor for displaying

data in a visual form the computer program product comprising means, stored on a computer readable medium, for:

    a. receiving a set of proteomic and genomic data including data samples with characteristics;

    b. receiving at least one partitioning scheme, with each partition scheme including at least one partition into which a portion of the data is to be grouped based on a characteristic;

    c. generating a graphical representation of the relative size of each partition in each partition scheme;

    d. accepting a user selection of a particular partition scheme; and, in response,

    e. adjusting the view of all other partition schemes to reflect the distribution of the characteristic used as the basis of the selected partition scheme; and

    f. outputting a graphical representation; whereby a user can view a graphical representation of the distribution of a particular characteristic based on a particular partitioning scheme.

80. A computer program product for plotting proteomic and genomic data as set forth in claim 79, wherein the means for generating a graphical representation generates a graphical representation in the form of pie-type charts, each with pie slices, with each pie slice representing the portion of the overall pie attributable to a particular partition of a partition scheme.

81. A computer program product for plotting proteomic and genomic data as set forth in claim 79, wherein the means for generating a graphical representation generates a graphical representation in the form of a plurality of pie chart groups, with each pie chart group including a partition scheme pie chart representing the overall distribution a characteristic selected, and a plurality of partition pie charts, each representing a partition within the partition scheme pie chart.

82. A computer program product for plotting proteomic and genomic data as set forth in claim 81, wherein the means for accepting a user selection of a particular partition scheme accepts a user selection of a particular partition scheme by the user graphically selecting a pie chart group among the plurality of pie chart groups, and wherein the means for adjusting the view of all other partition schemes to reflect the distribution of the characteristic used as the basis of the selected partition scheme adjusts all of the pie chart groups such that the partition scheme pie charts and the partition pie charts are all partitioned according to the partition scheme of the selected pie chart group; whereby the pie charts may be compared visually to determine possible correlations therebetween.

83. A computer program product for plotting proteomic and genomic data as set forth in claim 82, further comprising means for:
   a. receiving a user selection of multiple partition pie charts;
   b. receiving a user request to unite the partition pie charts into a united group consisting of the data present in all of the multiple partition pie charts selected by the user; and
   c. generating a list of the data in the united group.

84. A computer program product for plotting proteomic and genomic data as set forth in claim 83, further including means for generating and displaying a pie chart based on the data in the united group and partitioned into two slices, with one slice representing the number of data samples in the united group and the other slice representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the united group; whereby a user may view the number of samples in the united group and its complement in a single pie chart.

85. A computer program product for plotting proteomic and genomic data as set forth in claim 84, further including means for generating a new partition scheme with

one partition representing the number of data samples in the united group and the other partition representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the united group.

5   86. A computer program product for plotting proteomic and genomic data as set forth in claim 82, further comprising means for:

    a. receiving a user selection of multiple partition pie charts;

    b. receiving a user request to intersect the partition pie charts into an intersected group consisting of data present in all of the multiple partition

10   pie charts selected by the user; and

    c. generating a list of the data in the intersected group.

87. A computer program product for plotting proteomic and genomic data as set forth in claim 86, further including means for generating and displaying a pie chart

15   based on the data in the intersected group and partitioned into two slices, with one slice representing the number of data samples in the intersected group and the other slice representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the intersected group; whereby a user may view the number of samples in the intersected group and its

20   complement in a single pie chart.

88. A computer program product for plotting proteomic and genomic data as set forth in claim 87, further including means for generating a new partition scheme with one partition representing the number of data samples in the intersected group and

25   the other partition representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the intersected group.

89. A computer program product for plotting proteomic and genomic data as set forth in claim 82, further including means for displaying a list of data used for the

30   generation of a particular partition pie chart when the partition pie chart is

selected; whereby a user may view a partition pie chart and may also examine the underlying data.

90. A computer program product for plotting proteomic and genomic data as set forth in claim 79, further including means for receiving a user request to search for a particular piece of data and, in response to the user request, for indicating the pie charts in which the particular piece of data is present; whereby a user may visually determine which pie chart groups include the particular piece of data.

91. A computer program product for plotting proteomic and genomic data as set forth in claim 82, further comprising means for:
   a. receiving a user selection of multiple partition pie charts;
   b. receiving a user request to unite the partition pie charts into a united group consisting of the data present in all of the multiple partition pie charts selected by the user; and
   c. generating a list of the data in the united group.

92. A computer program product for plotting proteomic and genomic data as set forth in claim 91, further including means for generating and displaying a pie chart based on the data in the united group and partitioned into two slices, with one slice representing the number of data samples in the united group and the other slice representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the united group; whereby a user may view the number of samples in the united group and its complement in a single pie chart.

93. A computer program product for plotting proteomic and genomic data as set forth in claim 92, further including means for generating a new partition scheme with one partition representing the number of data samples in the united group and the

other partition representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the united group.

94. A computer program product for plotting proteomic and genomic data as set forth in claim 93, further comprising means for:

    a. receiving a user selection of multiple partition pie charts;

    b. receiving a user request to intersect the partition pie charts into an intersected group consisting of data present in all of the multiple partition pie charts selected by the user; and

    c. generating a list of the data in the intersected group.

95. A computer program product for plotting proteomic and genomic data as set forth in claim 94, further including means for generating and displaying a pie chart based on the data in the intersected group and partitioned into two slices, with one slice representing the number of data samples in the intersected group and the other slice representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the intersected group; whereby a user may view the number of samples in the intersected group and its complement in a single pie chart.

96. A computer program product for plotting proteomic and genomic data as set forth in claim 95, further including means for generating a new partition scheme with one partition representing the number of data samples in the intersected group and the other partition representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the intersected group.

97. A computer program product for plotting proteomic and genomic data as set forth in claim 96, further including means for displaying a list of data used for the generation of a particular partition pie chart when the partition pie chart is

selected; whereby a user may view a partition pie chart and may also examine the underlying data.

98. A computer program product for plotting proteomic and genomic data as set forth in claim 97, further including means for receiving a user request to search for a particular piece of data and, in response to the user request, for indicating the pie charts in which the particular piece of data is present; whereby a user may visually determine which pie chart groups include the particular piece of data.

99. A computer program product for plotting proteomic and genomic data as set forth in claim 79, wherein the means for generating a graphical representation generates a graphical representation in the form of a graphical chart, each with chart slices, with each chart slice representing the portion of the overall chart attributable to a particular partition of a partition scheme.

100. A computer program product for plotting proteomic and genomic data as set forth in claim 79, wherein the means for generating a graphical representation generates a graphical representation in the form of a plurality of chart groups, with each chart group including a partition scheme chart representing the overall distribution a characteristic selected, and a plurality of partition charts, each representing a partition within the partition scheme chart.

101. A computer program product for plotting proteomic and genomic data as set forth in claim 100, wherein the means for accepting a user selection of a particular partition scheme accepts a user selection of a particular partition scheme by the user graphically selecting a chart group among the plurality of chart groups, and wherein the means for adjusting the view of all other partition schemes to reflect the distribution of the characteristic used as the basis of the selected partition scheme adjusts all of the chart groups such that the partition scheme charts and the partition charts are all partitioned according to the partition

scheme of the selected chart group; whereby the charts may be compared visually to determine possible correlations therebetween.

102.   A computer program product for plotting proteomic and genomic data as set forth in claim 101, further comprising means for:

    a. receiving a user selection of multiple partition charts;

    b. receiving a user request to unite the partition charts into a united group consisting of the data present in all of the multiple partition charts selected by the user; and

    c. generating a list of the data in the united group.

103.   A computer program product for plotting proteomic and genomic data as set forth in claim 102, further including means for generating and displaying a chart based on the data in the united group and partitioned into two slices, with one slice representing the number of data samples in the united group and the other slice representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the united group; whereby a user may view the number of samples in the united group and its complement in a single chart.

104.   A computer program product for plotting proteomic and genomic data as set forth in claim 103, further including means for generating a new partition scheme with one partition representing the number of data samples in the united group and the other partition representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the united group.

105.   A computer program product for plotting proteomic and genomic data as set forth in claim 104, further comprising means for:

    a. receiving a user selection of multiple partition charts;

b. receiving a user request to intersect the partition charts into an intersected group consisting of data present in all of the multiple partition charts selected by the user; and

c. generating a list of the data in the intersected group.

5

106. A computer program product for plotting proteomic and genomic data as set forth in claim 105, further including means for generating and displaying a chart based on the data in the intersected group and partitioned into two slices, with one slice representing the number of data samples in the intersected group

10 and the other slice representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the intersected group; whereby a user may view the number of samples in the intersected group and its complement in a single chart.

15 107. A computer program product for plotting proteomic and genomic data as set forth in claim 106, further including means for generating a new partition scheme with one partition representing the number of data samples in the intersected group and the other partition representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the

20 intersected group.

108. A computer program product for plotting proteomic and genomic data as set forth in claim 101, further including means for displaying a list of data used for the generation of a particular partition chart when the partition chart is

25 selected; whereby a user may view a partition chart and may also examine the underlying data.

109. A computer program product for plotting proteomic and genomic data as set forth in claim 108, further including means for receiving a user request to

30 search for a particular chart of data and, in response to the user request, for

indicating the charts in which the particular chart of data is present; whereby a user may visually determine which chart groups include the particular chart of data.

5   110.   A computer program product for plotting proteomic and genomic data as set forth in claim 101, further comprising means for:

a. receiving a user selection of multiple partition charts;

b. receiving a user request to unite the partition charts into a united group consisting of the data present in all of the multiple partition charts selected

10   by the user; and

c. generating a list of the data in the united group.

111.   A computer program product for plotting proteomic and genomic data as set forth in claim 110, further including means for generating and displaying a

15   chart based on the data in the united group and partitioned into two slices, with one slice representing the number of data samples in the united group and the other slice representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the united group; whereby a user may view the number of samples in the united group and its complement in a

20   single chart.

112.   A computer program product for plotting proteomic and genomic data as set forth in claim 111, further including means for generating a new partition scheme with one partition representing the number of data samples in the united

25   group and the other partition representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the united group.

113.   A computer program product for plotting proteomic and genomic data as

30   set forth in claim 112, further comprising means for:

    a. receiving a user selection of multiple partition charts;

    b. receiving a user request to intersect the partition charts into an intersected group consisting of data present in all of the multiple partition charts selected by the user; and

5

    c. generating a list of the data in the intersected group.

114.   A computer program product for plotting proteomic and genomic data as set forth in claim 113, further including means for generating and displaying a chart based on the data in the intersected group and partitioned into two slices,

10

with one slice representing the number of data samples in the intersected group and the other slice representing the number of data samples in the set of proteomic and genomic data minus the number of data samples in the intersected group; whereby a user may view the number of samples in the intersected group and its complement in a single chart.

15

115.   A computer program product for plotting proteomic and genomic data as set forth in claim 114, further including means for generating a new partition scheme with one partition representing the number of data samples in the intersected group and the other partition representing the number of data samples

20

in the set of proteomic and genomic data minus the number of data samples in the intersected group.

116.   A computer program product for plotting proteomic and genomic data as set forth in claim 115, further including means for displaying a list of data used

25

for the generation of a particular partition chart when the partition chart is selected; whereby a user may view a partition chart and may also examine the underlying data.

117.   A computer program product for plotting proteomic and genomic data as

30

set forth in claim 116, further including means for receiving a user request to

search for a particular chart of data and, in response to the user request, for indicating the charts in which the particular chart of data is present; whereby a user may visually determine which chart groups include the particular chart of data.

5

118.   An apparatus for plotting proteomic and genomic data, the apparatus comprising a computer system including a processor, a memory coupled with the processor, an input coupled with the processor for receiving proteomic and genomic data and for receiving user input, and an output coupled with the

10   processor for displaying data in a visual form, wherein the computer system further comprises means, residing in its processor and memory, for:

a. receiving a set of proteomic and genomic data including data samples with characteristics;

b. receiving at least one partitioning scheme, with each partition scheme

15   including at least one partition into which a portion of the data is to be grouped based on a characteristic;

c. generating a graphical representation of the relative size of each partition in each partition scheme; and

d. outputting a graphical representation; whereby a user can view a graphical

20   representation of the distribution of a particular characteristic based on a particular partitioning scheme.

119.   A method for plotting proteomic and genomic data, the method operating on a computer system including a processor, a memory coupled with the

25   processor, an input coupled with the processor for receiving proteomic and genomic data and for receiving user input, and an output coupled with the processor for displaying data in a visual form, the method comprising the steps of:

a. receiving a set of proteomic and genomic data in the input of the computer system including data samples with characteristics;

b. receiving at least one partitioning scheme in the input of the computer system, with each partition scheme including at least one partition into which a portion of the data is to be grouped based on a characteristic;

c. generating a graphical representation of the relative size of each partition in each partition scheme; and

d. outputting a graphical representation through the output of the computer system for display in a visual display device; whereby a user can view a graphical representation of the distribution of a particular characteristic based on a particular partitioning scheme.

120. A computer program product for plotting proteomic and genomic data, a computer system including a processor, a memory coupled with the processor, an input coupled with the processor for receiving proteomic and genomic data and for receiving user input, and an output coupled with the processor for displaying data in a visual form the computer program product comprising means, stored on a computer readable medium, for:

a. receiving a set of proteomic and genomic data including data samples with characteristics;

b. receiving at least one partitioning scheme, with each partition scheme including at least one partition into which a portion of the data is to be grouped based on a characteristic;

c. generating a graphical representation of the relative size of each partition in each partition scheme; and

d. outputting a graphical representation; whereby a user can view a graphical representation of the distribution of a particular characteristic based on a particular partitioning scheme.